

REMARKS

Claims 1-23 are pending in the application.

Claims 1-23 stand rejected.

I. REJECTIONS UNDER 35 U.S.C. §102

Claims 1-13 stand rejected under 35 U.S.C. §102(b) as being anticipated by *Lewiner et al.* (U.S. Patent No. 4,194,189) (hereinafter *Lewiner (I)*). In response, Applicants respectfully traverse this rejection. As the Examiner is well aware, for a claim to be anticipated under §102, each and every element of the claim must be found within the cited prior art reference.

Applicants have amended claims 1-11 to recite an optical shutter wherein the first electret is embedded in a light guidance substrate, and the moveable second electret layer is embedded in a deformable dielectric layer. These limitations are supported by the amendments to the specification made herein, and the addition of Figures 2A and 2B. No new matter has been added with such additional material since they pertain to how the actuator 100 can be utilized within the device disclosed in U.S. Patent No. 5,319,491, as described within the specification as originally filed (see page 7 of the Specification). Since U.S. Patent No. 5,319,491 was also incorporated by reference, 37 C.F.R. §1.57 applies. These limitations, along with others recited within the claims are not in any way taught or suggested by *Lewiner (I)*. As a result, the rejections of these claims are moot, and these claims are patentable over *Lewiner (I)*.

With respect to claims 12 and 13, neither *Lewiner (I)*'s claims nor the specification disclose what the Examiner asserts is disclosed on page 4 of the Office Action. *Lewiner (I)* simply does not mention frustration of total internal reflection, low refractive index gaps, or light beams jumping such gaps when they are narrowed to subwavelengths values. *Lewiner (I)* discloses two basic means to modulate light: by interposing an opaque element in its path, or moving a reflective element to alter its path (setting aside irrelevant variations such as modulating ultraviolet light onto a fluorescent surface, in which event the same two means are retained). Applicant has scoured *Lewiner (I)* for any evidence of the Examiner's itemized rejection and finds no support whatsoever for the Examiner's assertions. *Lewiner (I)* teaches the

deflection of an existing propagative light wave. The present invention teaches the *de novo* creation of a propagative light wave from an evanescent wave, which is what frustration of total internal reflection entails at the electromagnetic level.

As a result of the foregoing, Applicants respectfully assert that claims 12 and 13 are not anticipated by *Lewiner (I)*.

Claims 14-23 stand rejected under 35 U.S.C. §102(b) as being anticipated by *Lewiner et al.* (U.S. Patent No. 4,078,183) (hereinafter *Lewiner (II)*). Applicants respectfully traverse this rejection. Claims 14-23 have been amended, and thus these rejections are moot. Furthermore, these claims have been amended to more specifically recite an embodiment of the present invention in a manner that further defines the positioning of the electret layers with respect to the conductive layers. *Lewiner (II)* only describes a single electret layer. Since the claims have been amended to recite two electret layers, *Lewiner (II)* no longer applies.


In anticipation that the Examiner will use *Lewiner (I)* to now reject claims 14-23, Applicants provide the following arguments. The difference between *Lewiner* and the present invention can easily be seen by comparing *Lewiner (I)* Figure 1 with Figure 1A of the present invention. In *Lewiner (I)*, both electret layers are disposed between the control electrodes. In the present invention as now recited in claims 14-23, only one electret layer is disposed between the control electrodes. This architectural difference has at least four important functional ramifications: (1) the operational voltage is dropped due to Coulomb's Law applied to the shifted superpositions of the planes; and (2) vastly increased physical space to accommodate the present invention's lower electret within the base substrate is provided – the electret need no longer be squeezed into an ultra-thin region on top of the control electrode as *Lewiner (I)* teaches, but can exist at any depth within the substrate 101; as a result of which, (3) the room heretofore occupied by the first electret in *Lewiner (I)* can be recovered for a smaller electroactuating gap, increasing transient response while decreasing voltage and power requirements even further than what was achieved by ramification (1) above; and (4) reduced susceptibility of the first electret to discharge and field decay, a reduction credited to the deeper imbedding of the electret in a larger

dielectric, significantly improving the life span of the device. Because the stack of elements in the present invention, as recited in the claims, is demonstrably different, and exhibits significantly improved functionality and flexibility than the stack of elements in *Lewiner (I)*, the difference in the stack sequences gives rise to non-trivial performance and deployment advantages for the claimed invention.

Please apply \$120 for the Petition for Extension of Time fee and any other necessary charges or credits to deposit account 06-1050.

Respectfully submitted,

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